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Study Guide: Triangle Congruence Proofs

1. Triangle Congruence Postulates

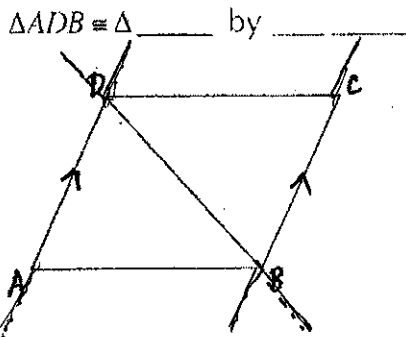
- a. SAS
- b. SSS
- c. ASA
- d. AAS
- e. HL
- f. **NOT SSA or AAA!**

2. Transversals

- a. Alternate Interior/Exterior Angles are congruent
- b. Corresponding Angles are congruent
- c. CAREFUL – sometimes another part of the diagram may “get in the way” of the angle you want to call congruent. Example below:

b. $\overline{AD} \parallel \overline{BC}, \overline{AB} \cong \overline{DC}$

CANNOT BE DETERMINED



You cannot say $\angle BDC \cong \angle DBA$! Those are only portions of the alternate interior angles.

- 3. Corresponding Parts of Congruent Triangles are Congruent (CPCTC) – Once you prove two triangles are congruent, you can then prove that all corresponding angles and sides are congruent.
- 4. Mid-Segment Theorem - The segment containing the midpoints of two sides of a triangle is **parallel** to the third side and is **half** as long as the third side.
- 5. Medians and Altitudes: The median is the segment that connects a vertex of a triangle to a midpoint on one of the triangle's sides (each triangle has 3 medians). The altitude is a segment from the vertex of a triangle to the opposite side that hits at a perpendicular (each triangle has 3 altitudes).
- 6. If two sides of a triangle are congruent, then the angles opposite them are congruent (Isosceles Triangle Base Angle Theorem). The converse is true: If two angles of a triangle are congruent, the sides opposite them are congruent.